What is claimed is:

1. A non-contact temperature measuring apparatus, comprising:

spherical semiconductors mounted to a measurement object and each having a surface thereof integratedly formed with an electronic circuit and mounted with a coil; and

a data collector, disposed out of contact with said spherical semiconductors, for supplying said spherical semiconductors with electric power required to operate said electronic circuits and for collecting pieces of temperature information transmitted from said spherical semiconductors,

wherein said electronic circuit of each of the spherical semiconductors is provided with a memory for storing identification information proper to the spherical semiconductor; a power source section for generating internal power, required to operate said electronic circuit, from electromagnetic energy received through said coil from outside; a sensing circuit including a thermosensitive element responsive to a temperature of the measurement object; and a transmitter for transmitting, as the temperature information, an output of said sensing circuit through said coil when the identification information stored in said memory is specified by said data collector, and

said data collector is provided with an energy source for generating electromagnetic energy; a transmitter for transmitting identification information to specify an arbitrary one of said spherical semiconductors; and a receiver for detecting the temperature information transmitted from the specified spherical semiconductor.

2. The non-contact temperature measuring apparatus according to claim 1, wherein said coil and said thermosensitive element mounted on said each spherical semiconductor are disposed diametrically opposite to each

other.

3. The non-contact temperature measuring apparatus according to claim 1, wherein the measurement object is a semiconductor wafer, and

said thermosensitive element is embedded into a surface layer of the semiconductor wafer.

4. The non-contact temperature measuring apparatus according to claim 1, wherein said memory of said each spherical semiconductor is a nonvolatile memory that retains the identification information even when the internal power disappears.

5. A non-contact temperature measuring method, comprising the steps of:

(a) substantially uniformly distributing the spherical semiconductors of the non-contact temperature measuring apparatus as set forth in any one of claims 1-4 on a measurement object;

(b) simultaneously supplying the spherical semiconductors with electric power from the data collector of said apparatus, to thereby permit the spherical semiconductors to detect temperatures of different points on the measurement object;

(c) contactlessly collecting, by the data collector, pieces of temperature information indicative of the detected temperatures and transmitted from the spherical semiconductors; and

(d) determining temperatures of or a temperature distribution throughout the measurement object based on the pieces of temperature information by the data collector.

6. The non-contact temperature measuring method according to claim 5, wherein said step (a) includes disposing one of the spherical semiconductors at a center of a surface of a semiconductor wafer serving as the measurement

object and disposing remaining spherical semiconductors at equal angular intervals on a circumference of at least one imaginary circle centered at the center of the surface of the semiconductor wafer, and

said step (b) includes detecting surface temperatures of different points on the semiconductor wafer.

7. The non-contact temperature measuring method according to claim 5, wherein said step (c) includes sequentially collecting pieces of identification information which are proper to the spherical semiconductors, respectively, and each of which is transmitted from a corresponding one of the spherical semiconductors together with the temperature information, and

said step (d) includes determining the temperature distribution throughout the measurement object in accordance with the pieces of temperature information and the pieces of identification information.

8. The non-contact temperature measuring method according to claim 5, wherein said step (c) includes correcting the temperature information to be transmitted from each spherical semiconductor in accordance with temperature correction information determined for each spherical semiconductor, the temperature correction information being determined from the output of the sensing circuit of the spherical semiconductor in a condition that the measurement object mounted with the spherical semiconductors is placed in a predetermined temperature circumstance.